

# **A Core Learning Experience on the History of Computers**

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**February 2002**

## **Introduction**

### **Purpose:**

The general purpose of this core learning experience is to historically research, trace and present relevant media on the historical development of computers and the microprocessor.

### **Core Objective:**

Student will develop an understanding of the impact made upon society by improvements in existing computer technologies.

### **Objectives:**

- ♦ To properly research, analyze and evaluate appropriate digital and non-digital source materials.
- ♦ To compile reliable and authentic materials for use in various report formats. Both traditional and new media. All formats reflect considerations on the social, cultural, political, and economic impact of computers development.
- ♦ To form conclusions based on observable trends and analysis of authentic data.
- ♦ To forecast and predict future trends in computer development.
- ♦ To integrate Technology, Math and English standards into final products.
- ♦ To produce a substantial research paper that links past, present, and future.
- ♦ To produce a slide show; illustrating with graphs (mhz comparison analysis) links past, present, and future. Or to produce a web page documenting, analyzing, and evaluating past, present, and future trends and developments.

### **Estimated Time:**

Meeting these objectives may require 10 classroom contact events along with homework

## Core Learning Experience Summary Chart

### Student Tasks & Instructional Methodology for Each Learning Experience

Student Learning Experiences	Student Tasks	Instructional Methodologies
<b>Learning Experience I</b>  Understanding Appropriate Research Strategies on History of Computers.	<ul style="list-style-type: none"> <li>♦ Traditional research</li> <li>♦ Internet Research: Evaluating Web Sites</li> <li>♦ Analyzing Information both digital and traditional Sources</li> <li>♦ Plagiarism: What it is and how to prevent it</li> </ul>	<ul style="list-style-type: none"> <li>♦ Lecture, briefing, discussion on traditional Library Journals and texts. “Traditional Sources” work sheet.</li> <li>♦ Five criteria for evaluating Web Pages</li> <li>♦ Subject Content Rubric</li> <li>♦ Review of Plagiarism worksheet.</li> </ul> <p><b>See Appendix: Learning Experience I</b></p>
<b>Learning Experience II</b>  <ul style="list-style-type: none"> <li>• Research Paper “Tracing the Historical development of Computers” (General)</li> </ul>	<ul style="list-style-type: none"> <li>• All students will view the video “The Creation of the Computer” to place this body of study in a proper context</li> <li>• Gather relevant materials from multiple sources and complete a formal paper.</li> </ul>	Research <b>paper</b> guidelines and spec sheet carefully administered and explained to students.  <p><b>See Appendix: Learning Experience II</b></p>

<b>Learning Experience III</b> <ul style="list-style-type: none"> <li>• “The Evolution of the Modern Microprocessor”</li> <li>• A PowerPoint Slide Show</li> <li>• A Web Page Design Project</li> </ul>	<ul style="list-style-type: none"> <li>• Produce an Informational <b>Web Page</b> on the “Evolution of the Modern Day Microprocessor”</li> <li>• Produce an Informational <b>Slideshow</b> on the “Evolution of the Modern Day Microprocessor”</li> <li>• Research development of processor for 1960-present</li> <li>• Create spreadsheet</li> <li>• Create graph</li> <li>• Add to report either in web page or slide show format.</li> </ul>	<b>See Appendix: Learning Experience III</b>
<b>Learning Experience IV Present</b> Comparison of research results to Moore’s Law <div style="text-align: right;">(specific)</div>	<ul style="list-style-type: none"> <li>• Find slope of graph and derive equation for it</li> <li>• Predict power of CPU in year 2020</li> <li>• Find out what Moore’s Law is</li> <li>• Compare individual findings with Law</li> </ul>	<b>See Appendix: Learning Experience IV</b>
<b>Learning Experience V</b> Future Predictions of Microprocessor power based on the one molecule transistor. <div style="text-align: right;">(specific)</div>	<ul style="list-style-type: none"> <li>• Read articles and research on web (one molecule transistor)</li> <li>• Read all suggested web sites</li> <li>• Predict how this invention will impact society by the year 2050</li> </ul>	<b>See Appendix: Learning Experience V</b>

<b>Description of Core Assessment: product &amp; performance</b>
Production of Term Paper, Portfolio Piece, Slide Show, Web Site, Formal Discussions and Presentations to class. Rubrics and grading guidelines are included in the appendix sections.

## Standards

The following standards are addressed by this core learning experience.

### New Standards Performance Standards:

#### **Applied Learning Standards:**

**A1c:** The student plans and organizes an event or an activity:

- ♦ Develops a planning schedule (the statement has been modified).
- ♦ Implements and adjusts the planning schedule (the statement has been modified);
- ♦ Evaluates the success of the event or activity using qualitative and/or quantitative methods;
- ♦ Makes recommendations for planning and organizing subsequent similar events or activities.

**A2a:** The student makes an oral presentation of project plans or findings to an audience with expertise in the relevant subject matter; that is, the student:

- ♦ Organizes the presentation in logical way appropriate to its purpose;
- ♦ Adjusts the style of presentation to suit its purpose and audience;
- ♦ Speaks clearly and presents confidently;
- ♦ Responds appropriately to questions from the audience;
- ♦ Evaluates the effectiveness of the presentation and identifies appropriate revisions for a future presentation.

**A2c:** The student develops a multi-media presentation, combining text, images, and/or sounds; that is, the student:

- ♦ Selects an appropriate medium for each element of the presentation;
- ♦ Uses the selected media skillfully, including editing and monitoring for quality;
- ♦ Achieves coherence in the presentation as a whole;
- ♦ Communicates the information effectively, testing audience response and revising the presentation accordingly.

**A3a:** The student gathers information to assist in completing project work; that is, the student:

- ♦ Identifies potential sources of information to assist in completing the project;
- ♦ Uses appropriate techniques to collect the information, e.g., considers sampling issues in conducting a survey;
- ♦ Interprets and analyzes the information
- ♦ Evaluates the information in terms of completeness, relevance, and validity;
- ♦ Shows evidence of research in the completed project.

**A3b:** The student uses on-line sources to exchange information for specific purposes; that is, the student:

- ♦ Uses E-mail to correspond with peers and specialists in the subject matter of their projects;
- ♦ Incorporates into E-mail correspondence data of different file types and applications.

**A3c:** The student uses word-processing software to produce a multi-page document; that is, the student:

- ♦ Uses features of the software to create and edit the document;
- ♦ Uses features of the software to format the document, including a table of contents, index, tabular columns, charts, and graphics;
- ♦ Uses features of the software to create templates and style sheets for the document.

**A3e:** The student creates, edits, and analyzes a spreadsheet of information that displays data in tabular, numeric format and includes multiple graphs; that is, the student:

- ♦ Creates a spreadsheet that displays the use of formulas and functions;
- ♦ Uses features of the software to sort, arrange, display, and extract data for specific purposes;
- ♦ Uses features of the software to create multiple spreadsheets and to synthesize the spreadsheets into a single presentation.

**A4b:** The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- ♦ Develops and maintains work schedules that reflect consideration of priorities;
- ♦ Manages time;
- ♦ Monitors progress towards meeting deadlines and adjusts priorities as necessary.

**A4c:** The student evaluates his or her performance; that is, the student:

- ♦ Establishes expectations for his or her own achievement;
- ♦ Critiques his or her work in light of the established expectations;
- ♦ Seeks and responds to advice and criticism from others.

### **English Standards:**

**E1c:** The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- ♦ Restates or summarizes information;
- ♦ Relates new information to prior knowledge and experience;
- ♦ Extends ideas;

- ♦ Makes connections to related topics or information.

**E2a:** The student produces a report that:

- ♦ Engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- ♦ Develops a controlling idea that conveys a perspective on the subject;
- ♦ Creates an organizing structure appropriate to purpose, audience, and context;
- ♦ Includes appropriate facts and details;
- ♦ Excludes extraneous and inappropriate information;
- ♦ Uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- ♦ Provides a sense of closure to the writing.

**E2d:** The student produces a narrative procedure that:

- ♦ Engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- ♦ Provides a guide to action for a complicated procedure in order to anticipate a reader's needs; creates expectations through predictable structures, e.g., headings; and provides smooth transitions between steps;
- ♦ Makes use of appropriate writing strategies, such as creating a visual hierarchy and using white space and graphics as appropriate;
- ♦ Includes relevant information;
- ♦ Excludes extraneous information;
- ♦ Anticipates problems, mistakes, and misunderstandings that might arise for the reader;
- ♦ Provides a sense of closure to the writing.

**E3a:** The student participates in one-to-one conferences with a teacher, paraprofessional, or adult volunteer, in which the student:

- ♦ Initiates new topics in addition to responding to adult-initiated topics;
- ♦ Asks relevant questions;
- ♦ Responds to questions with appropriate elaboration;
- ♦ Uses language cues to indicate different levels of certainty or hypothesizing, e.g., "what if...", "very likely...", "I'm unsure whether..."
- ♦ Confirms understanding by paraphrasing the adult's directions or suggestions.

**E3c:** The student prepares and delivers an individual presentation in which the student:

- ♦ Shapes information to achieve a particular purpose and to appeal to the interests and background knowledge of audience members;
- ♦ Shapes content and organization according to criteria for importance and impact rather than according to availability of information in resource materials;

- ♦ Uses notes or other memory aids to structure the presentation;
- ♦ Develops several main points relating to a single thesis;

**E4a:** The student independently and habitually demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- ♦ Grammar;
- ♦ Paragraph structure;
- ♦ Punctuation;
- ♦ Sentence construction;
- ♦ Spelling;
- ♦ Usage.

**E4b:** The student analyzes and subsequently revises work to clarify it or make it more effective in communicating the intended message of thought. The student's revisions should be made in light of purposes, audiences, and contexts that apply to the work. Strategies for revising include:

- ♦ Adding or deleting details;
- ♦ Adding or deleting explanations;
- ♦ Clarifying difficult passages;
- ♦ Rearranging words, sentences, and paragraphs to improve or clarify meaning;
- ♦ Sharpening the focus;
- ♦ Reconsidering the organizational structure;
- ♦ Rethinking and/or rewriting the piece in light of different audiences and purposes.

**E7a:** The student critiques functional documents with an eye to strategies common to effective functional documents, including:

- ♦ Visual appeal, e.g., format, graphics, white space, headers;
- ♦ Logic of the sequence in which the directions are given;
- ♦ Awareness of possible reader misunderstandings.

**E7b:** The student produces functional documents appropriate to audience and purpose, in which the student:

- ♦ Reports, organizes, and conveys information and ideas accurately;
- ♦ Includes relevant narrative details, such as scenarios, definitions, and examples;
- ♦ Anticipates readers' problems, mistakes, and misunderstandings;
- ♦ Uses a variety of formatting techniques, such as headings, subordinate terms, foregrounding of main ideas, hierarchical structures, graphics, and color;
- ♦ Establishes a persona that is consistent with the document's purpose;



- ♦ Employs word choices that are consistent with the persona and appropriate for the intended audience.

### **Math Standards:**

**M1a:** Uses addition, subtraction, multiplication, division, and exponentiation in forming and working with numerical or algebraic expressions (the statement has been modified). (Megahertz comparisons)

**M1e:** Represents numbers in decimal or fraction form and in scientific notation, and graphs numbers on the number line and number pairs in the coordinate plane.

**M2a:** Models situations geometrically to formulate and solve problems.

**M2i:** Compares slope (rise over run) and angle of elevation as measures of steepness.

**M2l:** Uses quotient measures, such as speed and density, that give “per unit” amounts; and uses product measures such as person-hours.

**M2n:** Solves problems involving scale, such as in maps and diagrams.

**M2o:** Represents geometric curves and graphs of functions in standard coordinate systems.

**M3a:** Models given situations with formulas and functions, and interprets given formulas and functions in terms of situations.

**M3i:** Represents functional relationships in formulas, tables, and graphs, and translates between pairs of these.

**M6e:** Makes and uses rough sketches, schematic diagrams, or precise scale diagrams to enhance a solution.

**M6g:** Creates and interprets graphs of many kinds, such as function graphs, circle graphs, scatter plots, regression lines, and histograms.

**M6j:** Uses technology to create graphs or spreadsheets that contribute to the understanding of a problem.

**M7b:** Uses mathematical representations with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams.

### **Science Standards:**

**S5b:** Uses concepts to explain a variety of observations and phenomena.

**S5c:** Uses evidence from reliable sources to develop descriptions, explanations, and models; and makes appropriate adjustments and improvements based on additional data or logical arguments.

**S5d:** Proposes, recognizes, analyzes, considers, and critiques alternative explanations; and distinguishes between fact and opinion.

**S6a:** Uses technology and tools to observe and measure objects, organisms, and phenomena, directly, indirectly, and remotely, with appropriate consideration of accuracy and precision (the statement has been modified).

**S6b:** Records and stores data using a variety of formats, such as databases, audiotapes, and videotapes.

**S6d:** Acquires information from multiple sources, such as print, the Internet, computer databases, and experimentation.

**S7a:** Represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; technical and creative writing; and selects the most effective way to convey the scientific information.

**S7b:** Argues from evidence, such as data produced through his or her own experimentation or data produced by others.

**ITEA Standards:**

**1J:** Students will develop an understanding of the characteristics and scope of technology. The nature and development of technological knowledge and processes are functions of the setting.

**1K:** Students will develop an understanding of the characteristics and scope of technology. The rate of technological development and diffusion is increasing rapidly.

**1L:** Students will develop an understanding of the characteristics and scope of technology. Inventions and innovations are the results of specific, goal-directed research.

**1M:** Students will develop an understanding of the characteristics and scope of technology. Most development of technologies these days is driven by the profit motive of the market.

**2W:** Students will develop an understanding of the core concepts of technology. Systems thinking applies logic and creativity with appropriate compromises in complex real-life problems

**2X:** Students will develop an understanding of the core concepts of technology. Systems, which are the building blocks of technology, are embedded within larger technological, social, and environmental systems.

**2Z:** Students will develop an understanding of the core concepts of technology. Selecting resources involves tradeoffs between competing values, such as availability, cost, desirability, and waste.

**2BB:** Students will develop an understanding of the core concepts of technology. Optimization is an ongoing process or methodology of designing or making a product and is dependent on criteria and constraints.

**3G:** Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study. Technology transfer occurs when a new user applies an existing innovation developed for one purpose in a different function.

**3H:** Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study. Changes caused by the use of technology can range from gradual to rapid and from subtle to obvious.

**3J:** Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study. Technological progress promotes the advancement of science and mathematics.

**4H:** Students will develop an understanding of the cultural, social, economic, and political effects of technology. Changes caused by the use of technology can range from gradual to rapid and from subtle to obvious.

**5L:** Students will develop an understanding of the effects of technology on the environment. Decisions regarding the implementation of technologies involve the weighing of trade-off between predicted positive and negative effects on the environment.

**6I:** Students will develop an understanding of the role of society in the development and use of technology. The decision whether to develop a technology is influenced by societal opinions and demands, in addition to corporate cultures.

**7G:** Students will develop an understanding of the influence of technology on history. Most technological development has been evolutionary, the result of a series of refinements to a basic invention.

**7H:** Students will develop an understanding of the influence of technology on history. The evolution of civilization has been directly affected by, and has in turn affected, the development and use of tools and materials.

**7I:** Students will develop an understanding of the influence of technology on history. Throughout history, technology has been a powerful force in reshaping the social, cultural, political, and economic landscape.

**10K:** Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. Not all problems are technological, and not every problem can be solved using technology.

**10L:** Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. Many technological problems require a multidisciplinary approach.

**12P:** Students will develop the abilities to use and maintain technological products and systems. Use computers and calculators to access, retrieve, organize, process, maintain, interpret, and evaluate data and information in order to communicate.

**13J:** Students will develop the abilities to assess the impact of products and systems. Collect information and evaluate its quality.

**13K:** Students will develop the abilities to assess the impact of products and systems. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.

**13L:** Students will develop the abilities to assess the impact of products and systems. Use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.

**17L:** Students will develop an understanding of and be able to select and use information and communication technologies. Information and communication technologies include the inputs, processes, and outputs associated with sending and receiving information.

**17N:** Students will develop an understanding of and be able to select and use information and communication technologies. Information and communication systems can be used to inform, persuade, entertain, control, manage, and educate.

# Student Learning Experience 1

## **Purpose:**

Understanding Appropriate Research Strategies on History of Computers.

## **Estimated Time:**

Two blocks of classroom time. (One block = approx 80 minutes)

## **Standards:**

**A1c:** The student plans and organizes an event or an activity:

- ♦ Develops a planning schedule (the statement has been modified).
- ♦ Implements and adjusts the planning schedule (the statement has been modified);
- ♦ Evaluates the success of the event or activity using qualitative and/or quantitative methods;
- ♦ Makes recommendations for planning and organizing subsequent similar events or activities.

**A4b:** The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- ♦ Develops and maintains work schedules that reflect consideration of priorities;
- ♦ Manages time;

Monitors progress towards meeting deadlines and adjusts priorities as necessary.

**A4c:** The student evaluates his or her performance; that is, the student:

- ♦ Establishes expectations for his or her own achievement;
- ♦ Critiques his or her work in light of the established expectations;

Seeks and responds to advice and criticism from others.

**E3a:** The student participates in one-to-one conferences with a teacher, paraprofessional, or adult volunteer, in which the student:

- ♦ Initiates new topics in addition to responding to adult-initiated topics;
- ♦ Asks relevant questions;
- ♦ Responds to questions with appropriate elaboration;
- ♦ Uses language cues to indicate different levels of certainty or hypothesizing, e.g., “what if...,” “very likely...,” “I’m unsure whether...”
- ♦ Confirms understanding by paraphrasing the adult’s directions or suggestions.

**E4b:** The student analyzes and subsequently revises work to clarify it or make it more effective in communicating the intended message of thought. The student’s revisions should be made in light of purposes, audiences, and contexts that apply to the work. Strategies for revising include:

- ♦ Adding or deleting details;
- ♦ Adding or deleting explanations;
- ♦ Clarifying difficult passages;

- ♦ Rearranging words, sentences, and paragraphs to improve or clarify meaning;
- ♦ Sharpening the focus;
- ♦ Reconsidering the organizational structure;
- ♦ Rethinking and/or rewriting the piece in light of different audiences and purposes.

**E7a:** The student critiques functional documents with an eye to strategies common to effective functional documents, including:

- ♦ Visual appeal, e.g., format, graphics, white space, headers;
- ♦ Logic of the sequence in which the directions are given;
- ♦ Awareness of possible reader misunderstandings.

**S6d:** Acquires information from multiple sources, such as print, the Internet, computer databases, and experimentation.

## **ITEA**

**1K:** Students will develop an understanding of the characteristics and scope of technology. The rate of technological development and diffusion is increasing rapidly.

**2BB:** Students will develop an understanding of the core concepts of technology. Optimization is an ongoing process or methodology of designing or making a product and is dependent on criteria and constraints.

**7G:** Students will develop an understanding of the influence of technology on history. Most technological development has been evolutionary, the result of a series of refinements to a basic invention.

**7I:** Students will develop an understanding of the influence of technology on history. Throughout history, technology has been a powerful force in reshaping the social, cultural, political, and economic landscape.

**10K:** Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving. Not all problems are technological, and not every problem can be solved using technology.

**13J:** Students will develop the abilities to assess the impact of products and systems. Collect information and evaluate its quality.

**13K:** Students will develop the abilities to assess the impact of products and systems. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.

**17N:** Students will develop an understanding of and be able to select and use information and communication technologies. Information and communication systems can be used to inform, persuade, entertain, control, manage, and educate.

## **Key Concepts Addressed:**

- ♦ Traditional research.

- ♦ Internet Research: Evaluating Web Sites.
- ♦ Analyzing Information; both digital, and traditional sources.
- ♦ Plagiarism: What it is and how to prevent it.

#### **Student Tasks:**

- ♦ Traditional research
- ♦ Internet Research: Evaluating Web Sites
- ♦ Analyzing Information both digital and traditional Sources
- ♦ Plagiarism: What it is and how to prevent it.

#### **Explanation of how learning tasks require higher level thinking:**

This lesson is both instructional and tutorial in nature. The greatest emphasis is not on gathering data from both traditional and non-traditional sources but evaluating the sources of data authentically and responsibly. To be successful in this core learning experience the student must actively engage in critical Analysis of data, Synthesis of data and the evaluation of multiple sources.

#### **Teacher Responsibilities:**

Arrange for Library Media Center tutorial and tour by certified staff.  
 Arrange for Computer Access so that student can gather source material  
 Review “Five Criteria for Evaluating Web Pages” (*Appendix* )  
 Review “Content Rubric” (*Appendix* )  
 Review “Plagiarism Worksheet” (*Appendix* )

#### **Materials & Equipment:**

Library Media Center presentation: Traditional print based sources.  
 Internet Search Methods:

#### **Resources:**

Access to the Library and Media Center.  
 Access to a PC with Internet Access.

## Student Learning Experience 2

### **Purpose:**

Research Paper Tracing the Historical development of Computers.

### **Estimated Time:**

Three blocks of classroom time. (One block = approx 80 minutes)

### **Standards:**

**A3a:** The student gathers information to assist in completing project work; that is, the student:

- ♦ Identifies potential sources of information to assist in completing the project;
- ♦ Uses appropriate techniques to collect the information, e.g., considers sampling issues in conducting a survey;
- ♦ Interprets and analyzes the information
- ♦ Evaluates the information in terms of completeness, relevance, and validity;
- ♦ Shows evidence of research in the completed project.

**A3c:** The student uses word-processing software to produce a multi-page document; that is, the student:

- ♦ Uses features of the software to create and edit the document;
- ♦ Uses features of the software to format the document, including a table of contents, index, tabular columns, charts, and graphics;
- ♦ Uses features of the software to create templates and style sheets for the document.

**A4c:** The student evaluates his or her performance; that is, the student:

- ♦ Establishes expectations for his or her own achievement;
- ♦ Critiques his or her work in light of the established expectations;
- ♦ Seeks and responds to advice and criticism from others.

**E1c:** The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- ♦ Restates or summarizes information;
- ♦ Relates new information to prior knowledge and experience;
- ♦ Extends ideas;
- ♦ Makes connections to related topics or information.

**E2a:** The student produces a report that:

- ♦ Engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- ♦ Develops a controlling idea that conveys a perspective on the subject;
- ♦ Creates an organizing structure appropriate to purpose, audience, and context;



- ♦ Includes appropriate facts and details;
- ♦ Excludes extraneous and inappropriate information;
- ♦ Uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- ♦ Provides a sense of closure to the writing.

**E2d:** The student produces a narrative procedure that:

- ♦ Engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- ♦ Provides a guide to action for a complicated procedure in order to anticipate a reader's needs; creates expectations through predictable structures, e.g., headings; and provides smooth transitions between steps;
- ♦ Makes use of appropriate writing strategies, such as creating a visual hierarchy and using white space and graphics as appropriate;
- ♦ Includes relevant information;
- ♦ Excludes extraneous information;
- ♦ Anticipates problems, mistakes, and misunderstandings that might arise for the reader;
- ♦ Provides a sense of closure to the writing.

**M6g:** Creates and interprets graphs of many kinds, such as function graphs, circle graphs, scatter plots, regression lines, and histograms.

**M6j:** Uses technology to create graphs or spreadsheets that contribute to the understanding of a problem.

## **ITEA**

**1K:** Students will develop an understanding of the characteristics and scope of technology. The rate of technological development and diffusion is increasing rapidly.

**7G:** Students will develop an understanding of the influence of technology on history. Most technological development has been evolutionary, the result of a series of refinements to a basic invention.

**13J:** Students will develop the abilities to assess the impact of products and systems. Collect information and evaluate its quality.

**13K:** Students will develop the abilities to assess the impact of products and systems. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.

## **Key Concepts Addressed:**

A general and broad understanding of the History of Computers.

**Student Tasks:**

Research using reliable web sites

Check and compare results

Organize information on spreadsheets

Create graph of results- year: # of transistors

Write one or two paragraphs about your findings and why results may be deemed reliable

**Explanation of how learning tasks require higher level thinking:**

This lesson is both instructional and tutorial in nature. This lesson combines Application, Analysis, Synthesis and evaluation of data harvested and interpreted in the form of a “production document utilizing proper format through a word processing program. The greatest emphasis is not on gathering data from both traditional and non-traditional sources but evaluating the sources of data authentically and responsibly.

**Teacher Responsibilities:**

Review of critical paper elements; “Must Haves”; Vacuum tube→ transistor→ CPU

Discuss “reliable” sites

**Materials & Equipment:**

Computer w/internet access Office Suite or equivalent

**Resources:**

Access to the Library and Media Center.

Access to a PC with Internet Access.

Hand out specification sheet for Research Papers.

Hand out MLA style sheet and guidelines

## Student Learning Experience 3

### **Purpose:**

Creating and presenting a Slide Show or Web Page tracing the development of the microprocessor from 1960's to present day.

### **Estimated Time:**

Three blocks of classroom time

### **Standards:**

**E1c:** The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- ♦ Restates or summarizes information;
- ♦ Relates new information to prior knowledge and experience;
- ♦ Extends ideas;
- ♦ Makes connections to related topics or information.

**M6g:** Creates and interprets graphs of many kinds, such as function graphs, circle graphs, scatter plots, regression lines, and histograms.

**M6j:** Uses technology to create graphs or spreadsheets that contribute to the understanding of a problem.

**A3a:** The student gathers information to assist in completing project work; that is, the student:

- ♦ Identifies potential sources of information to assist in completing the project;
- ♦ Uses appropriate techniques to collect the information, e.g., considers sampling issues in conducting a survey;
- ♦ Interprets and analyzes the information
- ♦ Evaluates the information in terms of completeness, relevance, and validity;
- ♦ Shows evidence of research in the completed project.

**A4c:** The student evaluates his or her performance; that is, the student:

- ♦ Establishes expectations for his or her own achievement;
- ♦ Critiques his or her work in light of the established expectations;
- ♦ Seeks and responds to advice and criticism from others.

### **ITEA**

**1K:** Students will develop an understanding of the characteristics and scope of technology. The rate of technological development and diffusion is increasing rapidly.

**7G:** Students will develop an understanding of the influence of technology on history. Most technological development has been evolutionary, the result of a series of refinements to a basic invention.

**13J:** Students will develop the abilities to assess the impact of products and systems. Collect information and evaluate its quality.

**13K:** Students will develop the abilities to assess the impact of products and systems. Synthesize data, analyze trends, and draw conclusions regarding the effect of technology on the individual, society, and the environment.

**Key Concepts Addressed:**

History of Computers—specifically microprocessors. Already understanding what reliable and authentic information sources are; the student is then asked to apply technical skills in creating a formative slide show and/or designing a formative HTML web site for it.

**Student Tasks:**

Research using reliable web sites

Organize information

Create and present a PowerPoint Slide Show on the evolution of the microprocessor.

Project hypothesis for future microprocessor developments.

Create and present an HTML Web Site on the evolution of the microprocessor. Project hypothesis for future microprocessor developments.

Use spreadsheet tables and graphs in the aforementioned.

**Explanation of how learning tasks require higher-level thinking:**

Students are further asked to compress and synthesize authentic data relevant to the topic. They are forced to analyze the necessary material for presentation in two subject related formats; PowerPoint and HTML

**Teacher Responsibilities:**

It is assumed that during this experience students have already completed studies in MS PowerPoint and HTML encoding. Vacuum tube→ transistor→ CPU

Discuss “reliable” sites

**Materials & Equipment:**

Computer w/internet access Office Suite or equivalent

Computer Projection Device

**Resources:**

Access to the Library and Media Center.

Access to a PC with Internet Access.

## Student Learning Experience IV

**Purpose:**

Comparison of research results to Moore's Law

Compare prediction to findings

**Estimated Time:**

3 periods

**Standards:**

**M6g:** Creates and interprets graphs of many kinds, such as function graphs, circle graphs, scatter plots, regression lines, and histograms.

**E2a:** The student produces a report that:

- ♦ Engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- ♦ Develops a controlling idea that conveys a perspective on the subject;
- ♦ Creates an organizing structure appropriate to purpose, audience, and context;
- ♦ Includes appropriate facts and details;
- ♦ Excludes extraneous and inappropriate information;
- ♦ Uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- ♦ Provides a sense of closure to the writing.

**E2d:** The student produces a narrative procedure that:

- ♦ Engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- ♦ Provides a guide to action for a complicated procedure in order to anticipate a reader's needs; creates expectations through predictable structures, e.g., headings; and provides smooth transitions between steps;
- ♦ Makes use of appropriate writing strategies, such as creating a visual hierarchy and using white space and graphics as appropriate;
- ♦ Includes relevant information;
- ♦ Excludes extraneous information;
- ♦ Anticipates problems, mistakes, and misunderstandings that might arise for the reader;
- ♦ Provides a sense of closure to the writing.

**M2i:** Compares slope (rise over run) and angle of elevation as measures of steepness.

**M3a:** Models given situations with formulas and functions, and interprets given formulas and functions in terms of situations.

**Key Concepts Addressed:**

“The Power of microprocessors doubles every 18 months”

**Student Tasks:**

Discuss and define Moore’s Law- add to research paper

Find slope and derive equation for graph

Compare results to prediction on a graph

Write a report of the steps you took to find your slope and equation; your results; add this to research paper.

Write a short explanation of Moore’s Law as a self-fulfilling prophecy

**Explanation of how learning tasks require higher level thinking:**

Prediction, analysis and comparison

**Teacher Responsibilities:**

Discuss “self fulfilling prophecy”

**Materials & Equipment:**

Computer w/internet access

**Resources:**

Math teacher or review Algebra I

## **Student Learning Experience V**

### **Purpose:**

Future predictions of microprocessor power based on the one molecule transistor.

### **Estimated Time:**

3 periods

### **Standards:**

ITEA

**1L:** Students will develop an understanding of the characteristics and scope of technology. Inventions and innovations are the results of specific, goal-directed research.

**1K:** Students will develop an understanding of the characteristics and scope of technology. The rate of technological development and diffusion is increasing rapidly.

**1M:** Students will develop an understanding of the characteristics and scope of technology. Most development of technologies these days is driven by the profit motive of the market.

**7G:** Students will develop an understanding of the influence of technology on history. Most technological development has been evolutionary, the result of a series of refinements to a basic invention.

**7I:** Students will develop an understanding of the influence of technology on history. Throughout history, technology has been a powerful force in reshaping the social, cultural, political, and economic landscape.

### **Key Concepts Addressed:**

Future Impact of Technology on Society/Individual

### **Student Tasks:**

Discuss impact on society of the development of a single molecule transistor (CPU power- what would a person living in 1950 have been able to predict about the development and use of the computer in 2000?)

Imagine the myriad of uses this discovery will create. Try to imagine uses that are both ethical and non-ethical. Discuss opinions using essay form

### **Explanation of how learning tasks require higher-level thinking:**

Prediction, ethical judgment, creativity

### **Teacher Responsibilities:**

Discussion: Comparison of excerpts from novels below with actual events

### **Materials & Equipment:**

Books-excerpts from:

Brave New World

Fahrenheit 451  
1984 etc.

**Resources:**  
Internet



# **Appendix**

## **Learning Experience I**

Understanding Appropriate Research  
Strategies; Focused towards  
The History Of Computers

## **Synthesizing information from multiple sources:**

Any student investigating, researching and presenting on the History of Computer Development has many, many sources which can be utilized. Magazines, newspapers, textbooks, and other more “traditional” sources can be easily obtained at a school or public library. The World Wide Web and Internet based web sites are another popular source for use by students.

The task of compressing all of this data into a meaningful report is very challenging for both the student and the teacher. Setting clear parameters and establishing clear guidelines is critically relevant.

### **Assumptions:**

The student is clear on the project development process (alone or group) as well as outcome expectations.

The student is aware of research sources both traditional and digital.

The student is clearly aware of the topic, format, and deadline for the presentation of material.

The student is aware of and understands the implications of Plagiarism.

## **History of Computers**

### **Subject Content Rubric: Higher Order Thinking**

<b>ATTRIBUTE</b>	<b>EMERGING</b>	<b>COMPETENT</b>	<b>EXEMPLARY</b>
<b>INVESTIGATE &amp; RESEARCH</b>	Little inquiry. Limited knowledge shown.	Explores topic with curiosity. Adequate knowledge from variety of sources displayed.	Knowledge base displays scope, thoroughness, and quality.
<b>ANALYZE &amp; EXAMINE</b>	Separates into few parts. Detects few connections or patterns.	Sifts and organizes information. Detects patterns. Connects information to explain the topic.	Prospects for patterns and connections. Uses plans or models to explain the nature of the whole topic.
<b>CONSTRUCT &amp; SYNthesize</b>	Applies little information. Combines few facts or ideas. Needs more development.	Assembles and combines new knowledge to form a coherent whole.	Combines facts and ideas to create new knowledge that is comprehensive and significant.
<b>REFLECT &amp; INTERPRET</b>	Conceives few ideas. Draws few inferences. The meaning of the topic is vague.	Uses perspectives and insights to explain relationships. Reflects real life.	Point of view reveals meaning of topic with insight into its significance. Applies to real life.

Evaluating the appropriateness, accuracy, and validity of the source:

<http://www.library.cornell.edu/okuref/research/webeval.html>

Five criteria for evaluating Web pages

Evaluation of Web documents	How to interpret the basics
<b>1. Accuracy of Web Documents</b> <ul style="list-style-type: none"><li>• Who wrote the page and can you contact him or her?</li><li>• What is the purpose of the document and why was it produced?</li><li>• Is this person qualified to write this document?</li></ul>	<b>Accuracy</b> <ul style="list-style-type: none"><li>• Make sure author provides e-mail or a contact address/phone number.</li><li>• Know the distinction between author and Webmaster.</li></ul>
<b>2. Authority of Web Documents</b> <ul style="list-style-type: none"><li>• Who published the document and is it separate from the "Webmaster?"</li><li>• Check the domain of the document, what institution publishes this document?</li><li>• Does the publisher list his or her qualifications?</li></ul>	<b>Authority</b> <ul style="list-style-type: none"><li>• What credentials are listed for the authors)?</li><li>• Where is the document published? Check URL domain.</li></ul>
<b>3. Objectivity of Web Documents</b> <ul style="list-style-type: none"><li>• What goals/objectives does this page meet?</li><li>• How detailed is the information?</li><li>• What opinions (if any) are expressed by the author?</li></ul>	<b>Objectivity</b> <ul style="list-style-type: none"><li>• Determine if page is a mask for advertising; if so information might be biased.</li><li>• View any Web page as you would an infomercial on television. Ask yourself why was this written and for whom?</li></ul>
<b>4. Currency of Web Documents</b> <ul style="list-style-type: none"><li>• When was it produced?</li><li>• When was it updated'</li><li>• How up-to-date are the links (if any)?</li></ul>	<b>Currency</b> <ul style="list-style-type: none"><li>• How many dead links are on the page?</li><li>• Are the links current or updated regularly?</li><li>• Is the information on the page outdated?</li></ul>

## 5. Coverage of the Web Documents

- Are the links (if any) evaluated and do they complement the documents' theme?
- Is it all images or a balance of text and images?
- Is the information presented cited correctly?

## Coverage

- If page requires special software to view the information, how much are you missing if you don't have the software?
- Is it free or is there a fee, to obtain the information?
- Is there an option for text only, or frames, or a suggested browser for better viewing?

## Putting it all together

- **Accuracy.** If your page lists the author and institution that published the page and provides a way of contacting him/her and . . .
- **Authority.** If your page lists the author credentials and its domain is preferred (.edu, .gov, .org, or .net), and, . .
- **Objectivity.** If your page provides accurate information with limited advertising and it is objective in presenting the information, and . . .
- **Currency.** If your page is current and updated regularly (as stated on the page) and the links (if any) are also up-to-date, and . . .
- **Coverage.** If you can view the information properly--not limited to fees, browser technology, or software requirement, then . . .

**You may have a Web page that could be of value to your research!**

<http://campusgw.library.cornell.edu/>

Critically Analyzing Information Sources  
Traditional Sources

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**INTRODUCTION**

**INITIAL APPRAISAL:**

- [Author](#)
- [Date of Publication](#)
- [Edition or Revision](#)
- [Publisher](#)
- [Title of Journal](#)

**CONTENT ANALYSIS:**

- [Intended Audience](#)
- [Objective Reasoning](#)
- [Coverage](#)
- [Writing Style](#)
- [Evaluative Reviews](#)

---

**INTRODUCTION**

You can begin evaluating a physical information source (a book or magazine article for instance) even before you have the physical item in hand. Appraise a source by first examining the bibliographic citation. The bibliographic citation is the written description of a book, journal article, essay, or some other published material that appears in a catalog or index. Bibliographic citations characteristically have three main components: author, title, and publication information. These components can help you determine the usefulness of this source for your paper. (In the same way, you can appraise a Web site by examining the home page carefully.)

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**I. INITIAL APPRAISAL**

**A. Author**

1. What are the author's credentials--institutional affiliation (where he or she works), educational background, past writings, or experience? Is the book or article written on a topic in the author's area of expertise? You can use the various *Who's Who* publications for the U.S. and other countries and for specific subjects and the biographical information located in the publication itself to help determine the author's affiliation and credentials.
2. Has your instructor mentioned this author? Have you seen the author's name cited in other sources or bibliographies? Respected authors are cited frequently by other

scholars. For this reason, always note those names that appear in many different sources.

3. Is the author associated with a reputable institution or organization? What are the basic values or goals of the organization or institution?

#### **B. Date of Publication**

1. When was the source published? This date is often located on the face of the title page below the name of the publisher. If it is not there, look for the copyright date on the reverse of the title page. On Web pages, the date of the last revision is usually at the bottom of the home page, sometimes every page.
2. Is the source current or out-of-date for your topic? Topic areas of continuing and rapid development, such as the sciences, demand more current information. On the other hand, topics in the humanities often require material that was written many years ago. At the other extreme, some news sources on the Web now note the hour and minute that articles are posted on their site.

#### **C. Edition or Revision**

Is this a first edition of this publication or not? Further editions indicate a source has been revised and updated to reflect changes in knowledge, include omissions, and harmonize with its intended reader's needs. Also, many printings or editions may indicate that the work has become a standard source in the area and is reliable. If you are using a Web source, do the pages indicate revision dates?

#### **D. Publisher**

Note the publisher. If the source is published by a university press, it is likely to be scholarly. Although the fact that the publisher is reputable does not necessarily guarantee quality, it does show that the publisher may have high regard for the source being published.

#### **E. Title of Journal**

Is this a scholarly or a popular journal? This distinction is important because it indicates different levels of complexity in conveying ideas. Or you may wish to check your journal title in the latest edition of *Katz's Magazines for Libraries* (Uris Ref and Olin Ref Z 6941 .K21) for a brief evaluative description.

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## **II. CONTENT ANALYSIS**

Having made an initial appraisal, you should now examine the body of the source. Read the preface to determine the author's intentions for the book. Scan the table of contents and the index to get a broad overview of the material it covers. Note whether bibliographies are included. Read the chapters that specifically address your topic. Scanning the table of contents of a journal or magazine issue is also useful. As with books, the presence and quality of a bibliography at the end of the article may reflect the care with which the authors have prepared their work.

#### **A. Intended Audience**

What type of audience is the author addressing? Is the publication aimed at a specialized or a general audience? Is this source too elementary, too technical, too advanced, or just right for your needs?

### **B. Objective Reasoning**

1. Is the information covered fact, opinion, or propaganda? It is not always easy to separate fact from opinion. Facts can usually be verified; opinions, though they may be based on factual information, evolve from the interpretation of facts. Skilled writers can make you think their interpretations are facts.
2. Does the information appear to be valid and well-researched, or is it questionable and unsupported by evidence? Assumptions should be reasonable. Note errors or omissions.
3. Are the ideas and arguments advanced more or less in line with other works you have read on the same topic? The more radically an author departs from the views of others in the same field, the more carefully and critically you should scrutinize his or her ideas.
4. Is the author's point of view objective and impartial? Is the language free of emotion-arousing words and bias?

### **C. Coverage**

1. Does the work update other sources, substantiate other materials you have read, or add new information? Does it extensively or marginally cover your topic? You should explore enough sources to obtain a variety of viewpoints.
2. Is the material primary or secondary in nature? Primary sources are the raw material of the research process. Secondary sources are based on primary sources. For example, if you were researching Konrad Adenauer's role in rebuilding West Germany after World War II, Adenauer's own writings would be one of many primary sources available on this topic. Others might include relevant government documents and contemporary German newspaper articles. Scholars use this primary material to help generate historical interpretations--a secondary source. Books, encyclopedia articles, and scholarly journal articles about Adenauer's role are considered secondary sources. In the sciences, journal articles and conference proceedings written by experimenters reporting the results of their research are primary documents. Choose both primary and secondary sources when you have the opportunity.

### **D. Writing Style**

Is the publication organized logically? Are the main points clearly presented? Do you find the text easy to read, or is it stilted or choppy? Is the author's argument repetitive?

### **E. Evaluative Reviews**

1. Locate critical reviews of books in a reviewing source, such as *Book Review Index*, *Book Review Digest*, OR *Periodical Abstracts*. Is the review positive? Is the book under review considered a valuable contribution to the field? Does the

reviewer mention other books that might be better? If so, locate these sources for more information on your topic.

2. Do the various reviewers agree on the value or attributes of the book or has it aroused controversy among the critics?

---

**Learning how to determine the relevance and authority of a given resource for your research is one of the core skills of the research process. For more assistance with the research process, consult your instructor or a reference librarian.**



# **Appendix**

## **Learning Experience II**

Research Paper

“Tracing The Historical Development of  
Computers”

## **“Research Paper” General Guidelines**

### **Utilizing MS Word 2000**

Over the past several weeks we have tied the history and development of modern day computer together in a couple of documents we labeled “Ancestors” and “Generations” In conjunction with this study your first actual Research Paper to be compiled, edited and printed to your portfolio shall be both investigative and practical in nature.

You are respectfully assigned a **research paper** on “Tracing The Historical Development of Computers”. An appropriate title to this research paper could be “The History of Computer Development”. You must investigate and report on people, places, events, equipment and machines that have contributed to this evolutionary marvel.

To successfully complete this assignment you will have to draw on your knowledge and skills in numerous software applications learned and used in class. (Photoworks, MS Word, Netscape Browser, IE, Search Engines, and multiple file formats and conversions)

<b>Filename:</b>	HISTORY
<b>Title Page:</b>	One page: Include Name, Date, Your bw photo The title page is not included as one of the six content pages.
<b>Margins:</b>	TM 1”, BM 1”, RM 1”, LM 1” one inch all around
<b>Content:</b>	<b>6 full pages minimum, single spacing required.</b>
<b>Fonts:</b>	<b>10 point Arial</b> or Times New Roman for the main body 14 point for sectional headlines
<b>Footer:</b>	<b>Page #</b> which must be right justified ( <b>no header</b> )
<b>Photographs:</b>	Downloadable in a proper file format -- <b>all grayshaded b/w</b>
<b>Bibliography:</b>	from the Internet or Media Center, in a proper MLA format :6 min
<b>Assigned on:</b>	Thursday December 14, 2002
<b>Due on:</b>	Thursday December 21, 2002
	Absence extension one for one Late submissions - minus one letter grade per day

## **Writing Style Guide**

### **Bibliographies:**

The Woonsocket Area Career & Technical Center is in the process of standardizing cross curriculum elements such as student bibliographies on research and report projects. The MLA guide to Bibliographies follows.

<http://www.schoolelection.com/bibliographies/>

#### **FORMATTING YOUR BIBLIOGRAPHY (MLA HANDBOOK STYLE):**

Your name & the page number should be in the header, right-justified as in the example below. (If the paper is 12 pages long, the Works Cited page should be numbered page 13). There should be 1/2 inch from the top of the page to your name/page number.

There should be 1 inch from the top of the page to the words "Works Cited" (centered).

The left and right margins should each be 1 inch.

Everything on the page (except your name/page number and the words "Works Cited") should be double-spaced. But do not put an extra blank line between entries in the bibliography.

The first line of each entry should be all the way over to the left side, and each line under it (in the same entry) should be indented roughly 5 spaces.

Example:

	Jackson, Michael and Lisa Marie Presley. "Why
	We Got Married." <u>National Enquirer</u> 01 Feb.
	1998: 4-5.

Entries in the bibliography should be listed alphabetically by the first word (ignoring "a," "an," and "the" so that, for example, "An Awesome Collection of Poetry" would come AFTER "Applegate, Mary.>").

## FORMATTING EACH WORK CITED WITHIN THE BIBLIOGRAPHY:

### BOOKS:

Format:

Author. Title: Subtitle. Place: Publisher, Date.

Examples:

Clinton, Hillary. Patience: My Story. New York: Random House, 2001.

Lewinsky, Monica A., and Vernon Jordan. How To Use What You've Got To Get What You Want. Washington, DC: Underdesk Publishing, 2000.

### MAGAZINE & NEWSPAPER ARTICLES:

Format:

Author. "Title of Article." Title of Periodical Date: First page-last page.

Examples:

Seinfeld, Jerry. "What I Did Today." People 4 Dec. 1997: A10.

Jackson, Michael and Lisa Marie Presley. "Why We Got Married." National Enquirer 01 Feb. 1998: 4-5.

### WEBSITE OR WEBPAGE:

Format:

Author. Title. Editor. Date. Institution. Access Date URL.  
*[Simply omit any information that isn't available]*

Examples:

Student Initiated Drinking and Driving Prevention. 4 Oct. 2000. National GRADD. 16 Feb. 2001 <<http://www.saferide.org>>.

Various posters. How To Be Popular In High School. Jeff Marx Books. 16 Feb. 2001 <<http://www.schoolelection.com/www.popularity.com/>>.

### **MAGAZINE & NEWSPAPER ARTICLES ACCESSED ONLINE:**

Format:

Author. "Article." Periodical Date: Extent. Access Date URL.

*[Simply omit any information that isn't available]*

Examples:

"Customer's Attempt To Complain To Manager Thwarted By Employee." The Onion 14 Feb. 2001 <[http://theonion.com/onion3705/attempt\\_to\\_complain.html](http://theonion.com/onion3705/attempt_to_complain.html)>.

Carlson, Margaret. "When a Buddy Movie Goes Bad: Bill and Al, the Boys on the Bus--how long ago that seems." Time 19 Feb. 2001. 21 Feb. 2001 <<http://www.time.com/time/magazine/article/0,9171,98988,00.html>>.

#### ARTICLE FROM A REFERENCE BOOK:

Format:

Author. "Title of Article." Book Title: Subtitle. Editor. Place: Publisher, Date. First page-last page.

*[Simply omit any information that isn't available]*

Examples:

King, Martin Luther. "I Have A Dream." Speeches: The Collected Wisdom of Martin Luther King. James Horn. Washington: King Press, 1971. 10-11.

#### TEMPLATE:

To use this template, you should cut-and-paste from the examples above (the "format" of the type of work you're citing) into the page below, and replace the template with your own info. Then make the formatting match the examples below, and delete the rest of the examples. Alphabetize after you're finished.

Be sure to change the name and page number at the top!

J. Jones 13

#### Works Cited

Lewinsky, Monica A., and Vernon Jordan. How To Use What You've Got To Get What You Want. Washington, DC: Underdesk Publishing, 2000.

Seinfeld, Jerry. "What I Did Today." People 4 Dec. 1997: A10.

Student Initiated Drinking and Driving Prevention. 4 Oct. 2000. National GRADD. 16

Feb. 2001 <<http://www.saferide.org>>.

"Customer's Attempt To Complain To Manager Thwarted By Employee." The Onion 14

Feb. 2001 <[http://theonion.com/onion3705/attempt\\_to\\_complain.html](http://theonion.com/onion3705/attempt_to_complain.html)>.

King, Martin Luther. "I Have A Dream." Speeches: The Collected Wisdom of Martin

Luther King. James Horn. Washington: King Press, 1971. 10-11.

This template file is a free resource provided by  
Jeff Marx Books, publisher of the book

**"HOW TO WIN A HIGH SCHOOL ELECTION:  
advice and ideas collected from over  
1,000 high school Seniors"**

If you're even considering running for an  
elected position in your Student Council, you  
owe it to yourself to first check out this book  
in your local library or bookstore -- or come and  
access it over the web at **[www.schoolelection.com](http://www.schoolelection.com)**

## **Plagiarism:**

Students engaged in any research project must have a clear understanding of what Plagiarism is.

### **What is Plagiarism?**

Plagiarism is a difficult concept to define. It includes a range of actions from failure to use proper citation to wholesale cheating. A student who plagiarizes may do so unintentionally or with planful deliberation.

Plagiarism is the improper use, or failure to attribute, another person's writing or ideas (intellectual property). It can be as subtle as the inadvertent neglect to include quotes or references when citing another source or as blatantly unethical as knowingly copying an entire paper verbatim and claiming it as your own work.

In "Helping Student Avoid Plagiarism" Stephen Wilhoit lists the following types of plagiarism:

- ♦ Buying a paper for a research service or term paper mill.
- ♦ Turning in another student's work without that student's knowledge.
- ♦ Turning in a paper a peer has written for the student.
- ♦ Copying a paper from a source text without proper acknowledgment.
- ♦ Copying materials from a source text, supplying proper documentation, but leaving out “ “.
- ♦ Paraphrasing materials from a source text without appropriate documentation.

The Internet has made simple an additional type of plagiarism:  
Turning in a paper from a "free term paper" website.

### **How Can I Prevent Plagiarism?**

- ♦ Emphasize the processes involved in doing research and writing papers. Ways to do so include requiring topic proposals, idea outlines, multiple drafts, interim working bibliographies and photocopies of sources.
- ♦ Require students to engage and apply ideas, not just describe them.
- ♦ Require students to reflect personally on the topic or the processes of research and writing, either in the paper or as an additional writing assignment.
- ♦ **Discuss plagiarism with students, both what it is and your policies about it. Plan an entire lesson on Plagiarism utilizing www resources.**

<http://www.indiana.edu/~wts/wts/plagiarism.html>

<http://sja.ucdavis.edu/avoid.htm>

<http://www.plagiarism.org/>

<http://www.plagiarism.org/faq.html>

## Rubric For Completion of a Research Project

1= Student does not meet the standard.

2= Student needs additional work.

3= Student meets the standard.

4= Student exceeds the standard.

Standards: E2a, E3a, E3b, E4b, T12, T11, T8, T7, T6

Criteria	4	3	2	1
<b>Compiling the Writing Process</b>	The student presented all steps of the writing process in the final draft in an organized fashion. In this order: Publishable final Draft (on top), revisions, drafts, teacher notes, rough free writes, and forming.	The student presented steps of the writing process in the final draft. The student organization in writing each of the process	The student did not 1-2 steps of the writing process, but did submit a publishable final draft.	The student submitted a draft that is trying to pose as a draft or the student submitted only a publishable final
<b>The Audience</b>	The student has a clear purpose for the research and maintains a distinctive voice (a bit shines through your writing) and appropriate tone throughout the paper. Your tone should be professional and personal.	The student has a clear purpose to the research. The student maintains a professional educational voice/tone throughout the research paper.	The student is unclear of the purpose to the research. The student does not maintain a personal or educational tone throughout the paper.	The student has no purpose, and there is no established professionalism.
<b>Multiple Resources</b>	The student used multiple various resources that included: 2 books, 4-5 internet sources from reliable sources, and 3 articles.	The student used: 1 book, 3 internet articles from reliable sources, and 2 articles.	The student used: 1 book, 1-2 internet articles, and 1 article.	The student used: no book, and no periodical sources, internet sources.
<b>Introduction</b>	The student has a catch phrase and a clearly defined thesis statement that tells the reader what the paper is about, and provides background information to the reader for the topic to be discussed.	The student has a catch phrase and a thesis statement; the student could provide more background information to the reader to help them for the topic to be discussed.	The student is missing 1 required component of an introduction.	The student is missing 2 of the required components of an introduction.



### Rubric For Research Paper cont...

1= Student does not meet the standard.

2= Student needs additional work.

3= Student meets the standard.

4= Student exceeds the standard.

Standards: E<sub>2</sub>a, E<sub>3</sub>a, E<sub>3</sub>b, E<sub>4</sub>b

Criteria	4	3	2	1
Appropriateness'  Body <u>Paragraphs</u>  <b>Topic</b> <i>Sentences</i> & <i>Supporting</i> <i>Details</i>	The student has appropriate topic sentences that are focused, relevant, and elaborate. The supporting details are relevant to the topic sentences and are elaborated on by the author. 5-6 details are used. The student has a logical and organized sequence of events to the paper.	The student has brief topic sentences that simply announce the main idea of the paragraph. The student uses 3-4 supporting details to elaborate on the topic sentence. The student has an organized sequence of events within the paper.	The student has a varied use of topic sentences, some paragraphs have them and some paragraphs don't, <b>OR</b> the topic sentences are not relevant, and do not communicate the main idea of the paragraph. The student used 2 supporting details and did not elaborate. There is no sequence of events.	The student does not use topic sentences for each paragraph, and there are 1-2 supporting details with no elaboration.
Transitions	The student used various transitional devices (transition words, sentences, and phrases) in the paper to ease the reader through.	The student used transitions throughout the paper.	The student missed a transition in 1 of the body paragraphs.	The student did not use transitions at all.
Quotes  Using MLA Format Of Parenthetical Citation	The student used 6 or more quotes within the research paper. All quotes were cited properly using parenthetical citation.	The student used 4-5 quotes within the research paper. All quotes were cited properly using parenthetical citation.	The student used 2-3 quotes in the paper, and not all of these quotes were cited properly.	The student used 0-1 quotes in the paper.  <b>The student did not cite any of the resource material. Do not let this happen to you!!! This could cause a possible failure!!!</b>
Conclusion	The student ended the paper with a conclusion that restates the thesis and summarizes all the main ideas of the paper, <b>But Using Different Words.</b> The author ends with something catchy like: a joke, a quote, some personal insight, or an interesting fact that is relevant to the topic.	The student ended the paper with a conclusion that restates the thesis and summarizes all the main ideas of the paper, <b>But Using Different Words.</b>	The student simply rewrites the thesis statement in the conclusion and summarizes only some of the main ideas using the same words.	The student did not include a conclusion in the paper.
Bibliography Works Cited Page	The student included a properly formatted works cited page at the	The student provided a works cited page at the end of the research	The student provided a works cited page at the end of the research paper	The student did not provide a works cited page.

MLA Format	end of the research paper.	paper with 1-3 errors.	with 4 or more errors.	
Mechanics	By the process of revision the student has no mechanical errors in the final draft	The student has 1-4 mechanical errors in the paper	The student has 5-8 mechanical errors in the paper	The student has 8 or more mechanical errors in the paper

# **Appendix**

## **Learning Experience III**

“The Evolution of the Modern  
Microprocessor”

A Slide Show or Web Page

## **Presenting a Slide Show Presentation: Rubric**

**The following rubric addresses in part the standard A2c (the student develops a multi-page presentation).**

The rubric below is a modification of one originally developed by Art. ST. Jean (computer science teacher at West Bay CTC) for the 2001-2002 IT CTC Curriculum Project.

<b>Criteria</b>	<b>Needs to work substantively in this area in order to meet the standard</b>	<b>Shows progress toward the standard</b>	<b>Meets the standard</b>	<b>Exceeds the standard</b>
<b>Scale</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Reliance on Slides</b>	Reads all slides. Provides no additional commentary	Reads most slides. Makes limited additional commentary	Uses slides to support presentation. Reads a number of slides, but also provides additional commentary.	Uses slides as guide for commentary. Reads only a few slides.
<b>Eye contact &amp; Posture</b>	Looks primarily at screen. Leans/sits on desk/table. Does not stand still – moves about in a hyper/hyper manner	Tends to make eye contact with only a few people and of short duration. Periodically, lapses into inappropriate posture – slouching, leaning, sitting.	Makes contact with audience, shifts gaze around room, and maintains appropriate posture.	Uses eye contact and posture to engage and relax the audience. Makes contact with audience, shifts gaze around room, and maintains appropriate posture.
<b>Clarity and Volume of Voice</b>	Speaks in a monotone, low tone, or garbled manner	Speaks clearly, but in a monotone or soft tone.	Speaks clearly and loud enough so everyone can hear.	Speaks clearly at an appropriate level and modulates tone to highlight points or express enthusiasm/energy
<b>Pace</b>	Speaks too quickly and races through slides so quickly that most people do not have time to read slides.	Presents at an erratic pace. Moving through some slides too quickly for the audience to grasp their meaning.	Presents at an appropriate pace so that audience can read each slide.	Adjusts pace while maintaining clarity of presentation in order to accommodate unexpected problems, e.g. need to shorten class due to fire drill.

## Web Site Rubric

Category	Expectation	50-60%	60-70%	70-80%	80%+
Understanding of Concept	Navigation structure is complete and logical	Navigation structure shows limited logic and completeness	Navigation structure displays some logic and completeness	Navigation structure illustrates considerable logic and contains most of the required pages	Navigation structure illustrates a high degree of logic and contains all the required pages
Understanding of Concept	Required elements are added to the web pages	A few of the required elements are added to the web pages	Some of the required elements are added to the web pages	Most of the required elements are added to the web pages	All or almost all of the required elements are added to the web pages
Critical Thinking Skills	Web site content fulfills the intended purpose of the personal web site	A few parts of the content are appropriate for the target audience	Some of the content is appropriate for the target audience	Most of the content is appropriate for the target audience	All or almost all of the content is appropriate for the target audience
Communicating for a Purpose	Web site content fulfills the intended purpose of the personal web site	Content is presented with a moderate sense of purpose	Content is presented with a considerable sense of purpose	Content is presented with a considerable sense of purpose	Content is presented with a strong sense of purpose
Application of Concepts	Required Page components are added to the web pages	A few of the required Page components are added to the web pages	Some of the required Page components are added to the web pages	Most of the required Page components are added to the web pages	All the required Page components are added to the web pages
Application of Concepts	Video, sound and graphics contain the appropriate labels, fields, and field properties	Inserts video(s), sounds, and graphics that contain two buttons	Creates video(s), sounds, and graphics with some of the appropriate labels and fields	Creates video(s), sounds, and graphics with most of the appropriate labels and fields	Creates video(s), sounds, and graphics with descriptive labels, appropriate fields, and appropriate field properties

Prepare a spreadsheet of your information to include processor, manufacturer, year and # of transistors on processor.

Plot a graph x-axis =year; y = # of transistors

# **Appendix**

## **Learning Experience IV**

“Comparison of research results to Moore’s  
Law”

**Teacher Notes:**

By the end of section 3, your students should have a report outlining the general development of the computer, plus a section dealing more specifically with the development of the microprocessor . In this lesson, they will compare the results of their graph with Moore's Law and project future growth.

Moore's Law, first stated in 1965, asserted that the number of transistors per processor would double every 18 months. The chart below shows Intel processors and Moore did work for Intel – thus the discussion of self- fulfilling prophecy. You may want to specify other computer companies' products for your students to investigate. Many lists can be found on the internet.

Make sure they write a section stating their results and, more importantly, how they arrived at their findings. After completing the graph, they can derive an equation and predict the size of the microprocessor in future years.

	Year	#Transistors
<b>4004</b>	1971	2,250
<b>8008</b>	1972	2,500
<b>8080</b>	1974	5,000
<b>8086</b>	1978	29,000
<b>286</b>	1982	120,000
<b>386™ processor</b>	1985	275,000
<b>486™ DX processor</b>	1989	1,180,000
<b>Pentium® processor</b>	1993	3,100,000
<b>Pentium II processor</b>	1997	7,500,000
<b>Pentium III processor</b>	1999	24,000,000
<b>Pentium 4 processor</b>	2000	42,000,000

**Useful sites:**

URL: <http://www.islandnet.com/~kpolsson/comphist/>

<http://fms.komkon.org/comp/misc/List.txt>

Ask Jeeves Computer History Timeline-Computer Tech On-line.htm

Intel

### Classroom Discussion; Oral Presentation Rubric

	Exceeds Standards 4	Meets Standard 3	Almost There 2	Not Yet 1	Teacher Notes	Total
Organization	Student presents information in logical, interesting sequence which engages the audience.	Student presents information in logical sequence which engages the audience.	Audience has difficulty following presentation because student jumps around.	Audience cannot understand presentation because there is no sequence of information.		
Subject Knowledge	Student demonstrates full knowledge (more than required) by answering all class questions w/ explanation and elaboration.	Student demonstrates general knowledge and is at ease with class questions but with little elaboration.	Student is uncomfortable with information and is able to answer only rudimentary questions.	Student does not have grasp of information; student cannot answer questions about subject.		
Visual Appeal	Student uses exceptional visual aids using graphics or technology.	Student uses visual aids that relate to text and presentation.	Student occasionally uses visual aids that rarely support text and presentation.	Student does not use visual aids.		
Mechanics	Presentation has no misspellings or grammatical errors.	Presentation has no more than two misspellings and/or grammatical errors.	Presentation has three misspellings and/or grammatical errors.	Student's presentation has four or more spelling errors and/or grammatical errors.		
Eye Contact	Student maintains eye contact with audience, rarely returning to notes.	Student maintains eye contact most of the time with frequent returns to notes.	Student occasionally uses eye contact and reads most of the report.	Student does not use eye contact and reads all of the report verbatim.		
Elocution	Student is engaged during presentation; speaks clearly and confidently in complete sentences.	Student is engaged during presentation; speaks clearly using mostly complete sentences.	Student is somewhat engaged during presentation; speaking is monotone.	Student is not engaged during presentation and speaking is inaudible using an uneven rate with mumbling.		
Grade Key						
A+ 24	B+ 19	C+ 15	D 10, 11			
A 22, 23	B 18	C 14	E 0-9			
A- 20, 21	B- 16, 17	C- 12, 13				



# **Appendix**

## **Learning Experience V**

“Future Predictions”

**Teacher Notes;**

You can find the books 1984 and Brave New World on line or buy them at any bookstore. All are available in paperback. There are many other novels you could use and there are also many examples on the Web of current research projects combining the latest technology with human and animal behavior. I'd suggest you use this part of the unit as a group project. Read some excerpts from novels and discuss the ethical use of technology and its impact upon the freedoms guaranteed the individual by both the law and ethical considerations. See if the students can find some examples of how computers are helping people cope with physical or neurological problems. What future do they see in war, in surveillance, in infringements of personal freedom?

Introduce the one molecule transistor. It's new technology so small that 10 million transistors can fit on the head of a pin.

What kinds of new technologies could be invented and how will they impact our lives? Who decides what will be allowed? What will happen to Moore's Law?

<http://www.bell-labs.com/news/2001/october/17/1.html>

<http://www.pcworld.com/news/article/0,aid,70446,00.asp>

<http://www.intel.com/pressroom/archive/releases/20011126tech.htm>

<http://www.infoworld.com/articles/hn/xml/01/11/09/011109hnsupercomputer.xml>